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EXAMINER	
ZHONG, JUN FEI	

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2623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/684,182	ARAD ET AL.	
	Examiner	Art Unit	
	JUN FEI ZHONG	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,13-15, and 18-22* is/are rejected.

7)☒ Claim(s) *7-12,16 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is responsive to an Amendment filed 2/15/2008. Claims 1-22 are pending. Claims 1, 3, 7, 14, 16-17, 19, 22 are amended. The examiner hereby withdraws the rejections under 35 USC 112, first and second paragraph, in light of the amendment.

Response to Arguments

2. Applicant's arguments filed 2/15/2008 have been fully considered but they are not persuasive.

Applicant argues in claims 1, 13, 18-21, Douglass does not disclose a plurality of independent sinusoidal signals generated in a digital-to-analog (DAC) converter.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues with respect to claim 18, Douglass does not disclose generate suitable control signals for use by a set top decoder to tune to a downstream channel carrying the TV channel determined in step 7.

In response, the examiner respectfully disagrees. Reading the claims in the broadest sense, Douglass does disclose generate suitable control signals for use by a set top decoder to tune to a downstream channel carrying the TV channel determined in step 7 (e.g., using the updated profiles from setup operation to tune) (see col. 9, lines 10-40; col. 19, line 11-col. 20, line 8; Fig. 9).

Applicant further argues Douglass does not disclose performing a setup process to learn the signature of each TV channel comprised of the return loss ratios of a plurality of probe signals, store the collection of return loss ratios as a signature for the TV channel to which the TVR is currently tuned and learn the return loss ratio signature of said TV channel to which said TVR is tuned and store said signature in memory, comparing the collection of return loss ratios to the signature stored in memory.

In response, the examiner respectfully disagrees. Reading the claims in the broadest sense, Douglass does disclose performing a setup process to learn the signature (e.g., return loss characteristic profile of a channel) of each TV channel comprised of the return loss ratios of a plurality of probe signals (Douglass discloses "*the return loss profile would consist of a value representing the reflected picture carrier signal strength measurement for each possible tuned channel*"; i.e., all possible frequencies) (see col. 8, lines 60-68), store the collection of return loss ratios as a signature for the TV channel to which the TVR is currently tuned and learn the return loss ratio signature of said TV channel to which said TVR is tuned and store said signature in memory (e.g., store profiles; see col. 9, lines 10-20), comparing the collection of return loss ratios to the signature stored in memory (e.g., update stored profiles, "learning mode") (see col. 9, lines 10-20).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 13-15 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Douglass et al. (Patent # US 5404161).

As to claim 1, Douglass discloses a return loss channel detector apparatus (Fig. 1) comprising:

a directional coupler (e.g., signal selection module 104; Fig. 1) having an RF output for coupling to an RF input of an analog television or analog video tape recorder (hereafter TVR) (e.g., path 110) and having a transmit input for receiving probe signals and a transmit output at which appears probe signals reflected from said TVR (e.g., switch 124 can selectively switch between forward (input) signal path or backward (output) signal path) (see col. 3, lines 19-21; col. 4, line 64 through col. 5, line 7; col. 9, lines 25-28);

a multiplexer (e.g., mixer 136) having an output (e.g., output signals to controller 200) coupled to said transmit input and having a first input (e.g., signals from detector tuner 130) for receiving a radio frequency carrier having a video signal modulated thereon and having a second input for receiving probe signals (e.g., signals from VCO 134) (see col. 6, lines 39-51; col. 7, lines 16-36);

a transmitter for generating probe signals (e.g., VCO 134 and controller 200) (see col. 11, lines 6-21 and 56-64; Fig. 3);

a receiver (e.g., detector tuner 130 and controller 200) for receiving reflected probe signals and calculating a return loss ratio therefrom (see col. 9, lines 3-9 and 21-41).

As to claim 13, Douglass discloses a process for determining if an analog TV or VCR (hereafter TVR) is tuned to a particular TV channel, comprising the steps:

(1) generating one or more probe signals having frequencies within the passband or some of which are within and some of which are without the passband of a tunable bandpass filter within a tuner of a TVR when said TVR is tuned to a particular TV channel (e.g., VCO 134 generate sweeping frequencies for testing) (see col. 6, lines 52-66);

(2) transmitting said probe signals to an RF tuner input of said TVR and coupling reflected power back to an input of a receiver (e.g., controller 200 forwards signals to TV 102 and detects reflected signals) (see col. 8, lines 4-38);

(3) in said receiver calculating a return loss ratio and determining therefrom whether said TVR is tuned to said particular TV channel (see col. 8, line 48 through col. 9, line 41).

As to claim 18, Douglass discloses a process for using return loss to verify a TV channel to which a TVR is tuned, comprising the steps:

1) detecting a local oscillator leakage signal and counting the frequency thereof and using said frequency to lookup a TV channel to which a TVR is tuned which would cause said local oscillator to have said frequency (see col. 6, lines 5-25);

2) generating and transmitting into an RF input of said TVR a plurality of probe signals having frequencies spread through a band of frequencies in which TV channels are transmitted (e.g., VCO 134 generate sweeping frequencies for testing) (see col. 6, lines 52-66);

3) determining the transmitted power of each probe signal (e.g., in order to calculate the return loss ratios, the transmitting signal power is known) (see col. 8, lines 48-59);

4) measuring the reflected power of each probe signal (e.g., in order to calculate the return loss ratios, the reflected signal power is known) (see col. 8, lines 48-59);

5) calculating the return loss ratio for each probe signal (see col. 8, lines 48-59);

6) determining the probe signal with the maximum return loss (see col. 8, lines 60-68);

7) determine the TV channel whose frequency has the best match with the probe signal which suffered the highest return loss (see col. 9, line 42 through col. 10, line 8);

8) determining if the TV channel determined in step 7 is the same as the TV channel determined in step 1 (see abstract; col. 17, line 63 through col. 18, line 4);

9) if step 8 determines the TV channels are different, use the TV channel determined in step 7 and generate suitable control signals for use by a set top decoder to tune to a downstream channel carrying the TV channel determined in step 7 and

recover the data thereof and convert said data to a television signal and modulate an RF carrier having the frequency of the TV channel determined in step 7 with said television signal (see col. 9, lines 21-41; col. 10, lines 9-25; col. 18, line 46 through col. 19, line 26; Fig. 9);

10) if step 8 determines the TV channels are the same, use the TV channel determined in steps 7 and 1 and generate suitable control signals for use by a set top decoder to tune to a downstream channel carrying the TV channel determined in step 7 and recover the data thereof and convert said data to a television signal and modulate an RF carrier having the frequency of the TV channel determined in step 7 with said television signal (see col. 9, lines 21-41; col. 10, lines 9-25; col. 18, line 46 through col. 19, line 26; Fig. 9).

As to claim 19, Douglass discloses a process for using return loss to determine a TV channel to which a TVR is tuned, comprising the steps:

1) performing a setup process to learn the signature of each TV channel comprised of the return loss ratios of a plurality of probe signals which have frequencies spread throughout the TV channel band, and storing the signature for each TV channel (e.g., generate return loss characteristic profile of a channel and store in controller 200) (see col. 8, lines 60-68);

2) determing the TV channel to which a TVR is currently tuned by performing the following steps:

3) generating a plurality of probe signals having frequencies which are spread through the band of frequencies in which TV channels are transmitted and transmitting said probe signals into the RF input of a tuner of a TVR (e.g., VCO 134 generate sweeping frequencies for testing) (see col. 6, lines 52-66);

4) calculating the return loss ratio on each probe signal (see col. 8, lines 48-59);

5) comparing the collection of return loss ratios and comparing the collection of return loss ratios to the signature stored in memory for each TV channel and determining the TV channel have the least difference between its signature and said collection of return loss ratios calculated in step 4 (see col. 9, lines 42-63; Fig. 5);

6) generating suitable control signals to control a set top decoder to tune to a downstream channel carrying the TV channel determined in step 5 and recover the data thereof and convert said data to a television signal and modulate an RF carrier having the frequency of the TV channel determined in step 5 with said television signal (see col. 9, line 64 through col. 10, line 25; Fig. 5).

As to claim 2, Douglass discloses the apparatus of claim 1 wherein said transmitter includes means for generating probe signals that have frequencies spread out through a band of frequencies in which TV channels are transmitted (e.g., VCO 134 generate sweeping frequencies for testing) (see col. 6, lines 52-66).

As to claim 3, Douglass discloses the apparatus of claim 2 wherein said receiver includes means for calculating return loss ratios for all probe signals generated by said transmitter and storing the calculated return loss ratios for each probe signal as a signature for a TV channel to which said TVR is tuned (e.g., generate return loss characteristic profile of a channel and store in controller 200) (see col. 8, lines 60-68).

As to claim 4, Douglass discloses the apparatus of claim 3 wherein said transmitter further comprises means for calculating a calibration coefficient for each probe signal, and wherein said means for calculating return loss ratios for said probe signal includes means for using the calibration coefficient for each probe signal in making the return loss ratio calculation for said probe signal (see col. 9, lines 22-41).

As to claim 14, Douglass discloses the process of claim 13 wherein step 1 comprises generating a plurality of probe signals having frequencies that are spread throughout the entire TV channel band (e.g., VCO 134 generate sweeping frequencies for testing), and wherein step 2 comprises transmitting a plurality of probe signals to said TVR simultaneously, and wherein step 3 comprises setting filter coefficients for each of a plurality of bandpass filters in said receiver such that said bandpass filter has a passband which encompasses the frequency at which a different one of said probe signals appears at the input to said bandpass filter, and calculating a return loss ratio on the output signal from each said bandpass filter (see col. 8, lines 60-68; col. 9, lines 22-41).

As to claim 15, Douglass discloses the process of claim 14 further comprising the step of calculating a calibration coefficient for each probe signal frequency and using said calibration coefficient for each probe signal frequency in a calculation of a return loss ratio for said probe signal to compensate for frequency dependent variations that affect the probe signals (e.g., using calibrate voltage source 234 to adjust signals) (see col. 10, line 61 through col. 11, line 21).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglass et al. (Patent # US 5404161) in view of Geiger et al. (Patent # US 5857003).

As to claim 5, Douglass discloses the apparatus of claim 1 wherein said transmitter includes a probe signal generator comprising:

a first clock for generating a first sample frequency and having a clock signal output (e.g., coarse tune 230; Fig. 3) (see col. 10, lines 61-67);

a second clock for generating a second sample frequency which is different than said first sample frequency and having a clock signal output (e.g., fine tune 232; Fig. 3) (see col. 10, lines 61-67);

a multiplexer having first and second inputs coupled to said outputs of said first and second clocks, respectively, and having an output (e.g., summing junction 250; Fig. 2 and 3) (see col. 10, lines 61-67; col. 11, lines 56-64);

Douglass does not specifically disclose a D/A converter coupled to output of multiplexer, and a direct digital synthesizer having a digital signal output coupled to said digital signal input of D/A.

Geiger discloses a digital to analog converter (D/A) (e.g., DAC 72; Fig. 3A) having a digital signal input and having an output, said D/A using a zero order hold process to construct an analog signal from a digital signal representation received at said digital signal input (see col. 5, lines 15-26; col. 10, lines 26-50),

a direct digital synthesizer (e.g., DDS 70; Fig. 3A) having a digital signal output coupled to said digital signal input of said D/A and having a control word input for receiving a control word which controls the frequency of the signal represented digitally by data output on said digital signal output (e.g., DDS 70 is controlled by microprocessor 12') (see col. 5, lines 15-30, 51-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide D/A converter and direct digital synthesizer as taught by Geiger to the signal generator of Douglass in order to provide an automatic frequency control for a digital radio wherein carrier frequency errors are removed to enhance digital signal recovery (see col. 1, lines 53-55).

As to claim 6, it contains the limitations of claim 5 and is analyzed as previously discussed with respect to claim 5 above.

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Douglass et al. (Patent # US 5404161) in view of Marsh et al. (Patent # US 6208799).

As to claim 20, Douglass discloses a setup process for learning the return loss ratio signature of each TV channel comprising steps for:

2) entering a learning mode (e.g., generates return loss characteristic profile of a channel and store in controller 200) (see col. 8, lines 60-68);

3) transmitting a channel change command to cause a TVR connected to a set top decoder with a return loss ratio channel detection circuit therein to tune to a specific channel (see col. 9, lines 22-41);

4) controlling said return loss ratio channel detection circuit to generate a plurality of probe signals and transmit them into the RF input of a tuner in said TVR (e.g., VCO 134 generate sweeping frequencies for testing) (see col. 6, lines 52-66);

5) measure the reflected amplitude of each said probe signal and calculate a return loss ratio therefor and store the collection of return loss ratios as a signature for the TV channel to which the TVR is currently tuned (e.g., calculate return loss in dB) (see col. 9, lines 42-46);

6) transmitting channel change command to cause said TVR to change to a new channel (see col. 6, lines 52-66);

7) repeating steps 4 and 5 for the new channel;

8) repeating steps 6 and 7 until a signature has been learned for every TV channel (see col. 6, lines 52-66).

Douglass does not specifically disclose an infrared transmitter.

Marsh discloses 1) establishing the proper infrared protocol for at least channel change commands to be emitted from an infrared transmitter (see col. 5, lines 42-49);

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide IR emitter as taught by Marsh to the channel detect system of Douglass in order to automatically adjusts the VCR channel (see col. 3, lines 12-24).

8. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglass et al. (Patent # US 5404161) in view of Darbee et al. (Patent # US 6130726).

As to claim 21, Douglass discloses a setup process for learning the return loss ratio signature of each TV channel comprising steps for:

2) entering a learning mode (e.g., generates return loss characteristic profile of a channel and store in controller 200) (see col. 8, lines 60-68);

3) transmitting a channel change command to cause said TVR connected to said return loss ratio channel detection circuit to tune to a specific channel, and sending a message to said STB telling said STB to which TV channel said TVR has just been tuned (see col. 9, lines 22-41);

4) controlling said return loss ratio channel detection circuit to generate a plurality of probe signals and transmit them into said RF input of said tuner in said TVR (e.g., VCO 134 generate sweeping frequencies for testing) (see col. 6, lines 52-66);

5) measure the reflected amplitude of each said probe signal and calculate a return loss ratio therefor and store the collection of return loss ratios as a signature for the TV channel to which the TVR is currently tuned (e.g., calculate return loss in dB) (see col. 9, lines 42-46);

6) transmitting channel change command to cause said TVR to change to a new channel (see col. 6, lines 52-66);

7) repeating steps 4 and 5 for the new channel;

8) repeating steps 6 and 7 until a signature has been learned for every TV channel (see col. 6, lines 52-66).

Douglass does not specifically disclose an external remote control for a set top decoder (STB), and remote control including an RF and infrared transmitter for communicating with STB.

Darbee discloses 1) establishing the proper infrared protocol for at least channel change commands to be emitted from an infrared transmitter in an external remote control for a set top decoder (STB), said external remote control including an RF transmitter for communicating with an RF receiver in said STB (e.g., a remote controller with infrared and RF transmitter for controlling set top box) (see col. 2, lines 6-67; col. 8, lines 45-55);

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a remote control as taught by Darbee to the channel detect system of Douglass in order to provide a bidirectional communication capability remote control with intelligence for monitoring program selection data entered into the unit by a user (see col. 2, lines 50-55).

As to claim 22, it contains the limitations of claim 21 and is analyzed as previously discussed with respect to claim 21 above.

Allowable Subject Matter

9. Claims 7-12, 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mostafa (U.S. Patent # 5495282) is cited to teach channel detecting system for TV/VCR.

Mabey (U.S. Patent # 4885632) is cited to teach TV/VCR monitoring system.

Chan (U.S. Patent # 6523175) is cited to teach channel detecting system for TV/VCR.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jun Fei Zhong whose telephone number is 571-270-1708. The examiner can normally be reached on Mon-Fri, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Vivek Srivastava can be reached on 571-272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JFZ
5/23/2008

/Vivek Srivastava/

Supervisory Patent Examiner, Art Unit 2623